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Did They Do It Differently? Capital Structure Choices of Public and Private Sectors in Pakistan

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1. INTRODUCTION

Capital structure is one of the most complex areas of strategic financial decision making due to its interrelationship with other financial decision variables. For more than four decades discussion in corporate finance concerns the question of optimal capital structure: Given a level of total capital necessary for supporting firm's activities, is there a way of dividing this capital into debt and equity which maximises firm value? And, if so, what are the critical factors in setting the leverage ratio for a given firm? Corporate finance literature is overwhelmed by this hot debate, which is still going on, about firm value triggered by the two conflicting conclusions of Modigliani and Miller (1958, 1963). For a comprehensive review of this literature, see Harris and Raviv (1991).

The theoretical and empirical research about the optimal capital structure has so far been inconclusive and conflicting. However, the capital structure approach to firm value has been successful to replace heuristics with more methodical approach to define capital structure of the firm. The researchers have theoretically as well as empirically identified many endogenous and exogenous factors affecting the firm's leverage. They have theoretically and empirically identified agency costs, information asymmetry, taxes, non-debt tax shields, growth, firm size, assets' collateral value and tangibility, profitability and liquidity, earnings variability, expected costs of financial distress, industry classification, country factor, and firm's international activities as the determinants of firm's debt-equity choices.

The listed firms in Pakistan operate in public as well as private sector. Public sector is perceived to be inefficient in operating and investment decisions due to low managerial effort, a popular argument given in favour of privatisation. They were also believed to have privileged access to public sector dominated debt market. Based on perceived different management practices and environment we hypothesise that the firms in public sector may also have different determinants of debt-equity choices.

This is an empirical study that covers private as well as public sector manufacturing firms listed at Karachi Stock Exchange. The data for this research has been adopted from 'Balance Sheet Analysis of Joint Stock Companies Listed on the Karachi Stock Exchange' and published by State Bank of Pakistan. This data is based upon published accounts of the listed companies.

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This study covers twenty nine years' period, 1976-2004, to identify various determinants of financing choices of manufacturing firms listed on KSE and to see if type of ownership, i.e. private sector or public sector, has an impact on these decisions. There is no other comprehensive data source that may provide firm level financial data in a standardised format over a longer time frame. The limitation of this study is that some of the determinants found in literature may not be calculable from the available data.

2. ANALYSIS

It is a common practice in social sciences that the experts are using proxies and dummies for their empirical analysis. The same can be observed in the different studies for the leverage. However, three proxies for leverage are used in different empirical studies. For example, Gaver and Gaver (1993) have used Debt/Equity Ratio (Long-term Liabilities/Common Equity), Remmers, *et al.* (1974), and Rahman (1990) have used Debt/Total Assets Ratio (Long-term Liabilities/Total Assets), and Bradley, *et al.* (1984) and Wald (1999) have used Total Debt/Total Assets Ratio [(Short-term Liabilities + Long-term Liabilities)/Total Assets] as a proxy for capital structure respectively. In most of the empirical literature these proxies or their combinations are often used for leverage. Various studies have used book and/or market value of debt and equity to calculate these proxies. However, the listed firms included in this database did not raise debt from market in dominant majority of the cases. Therefore, the book values are the only relevant values. Moreover, the market values for equity are not available in this data base. Owing to the data limitation only the book values for equity will be used wherever needed. No bias because of this misspecification is expected as observed by Titman and Wessels (1988).

For testing the hypotheses, a number of equations for the three proxies of leverage, with and without log, linear and non-linear, are estimated. However, the results of estimated equations indicate that TL/TA is the best proxy for leverage. The main reason for this phenomenon may be that the firms in Pakistan are generally observed to use current liabilities as their regular source for all types of their financing needs. The structure of capital market in Pakistan suggests that TL/TA (proportion of total assets being financed through total liabilities) would better reflect the picture of leverage. Table 1 narrates the proxies of all the variables included in this study.

Table 1

Variables and Their Proxies

Variable	Proxy	Definition
Leverage	TL/TA Ratio	(Long-term Liabilities + Short-term Liabilities)/Total Assets
Agency Costs	Expense Ratio	Operating Expenses/Sales
	Assets' Utilisation Ratio	Sales/Total Assets
Taxes	Tax Rate	Tax Provision/Net Profit Before Taxes
Non-debt Tax Shield	Depreciation Rate	Depreciation for the Year/Total Assets
Growth	Sales Growth Rate	$(Sales_1 - Sales_0)/Sales_0$
Firm Size	Ln (Total Assets)	Ln (Total Assets)
Assets' Collateral Value	Gross Fixed Assets' Ratio	Fixed Assets' at Cost/Total Assets
Assets' Tangibility	Net Fixed Assets' Ratio	Net Fixed Assets/Total Assets
Profitability	Net Income Ratio	Net Income/Total Assets
Liquidity	Current Ratio	Current Assets/Current Liabilities
Earnings Variability	Changes in Net Profit before Taxes	$\{(NPBT_1 - NPBT_0)/NPBT_0\}/TA1$

2.1. Agency Costs

High expense rates and low asset turnover can result from excessive perquisites and inefficiency in operating and investment decisions due to low managerial effort resulting into managerial agency costs. The literature has considered such agency costs and observed that debt restrains agency costs [Jensen and Meckling (1976) and Thies and Klock (1992)]. Moreover, managers can readily hide their perks consumption in operating expenses, while assets purchased for managerial consumption purposes will tend to reduce asset turnover [Ang, *et al.* (2000), Singh and Davidson (2003)]. This study uses expense ratio being the direct proxy and asset turnover being an inverse measure of agency costs due to poor investment decisions and insufficient effort by management which result in lower sales or large amount of assets with low productivity purchased by the management for excessive perk consumption.

The managements of public sector are perceived to be relatively inefficient, the argument generally advanced for privatisation of such firms. Based on this, it is our hypothesis that higher agency costs may prevail in public sector as compared to private sector. However, the mean expense ratio (expenses/sales) is 11 percent for public sector and 34 percent for private sector negates the common perception of inefficiency to show that public sector has been relatively operationally efficient. While, public sector has been relatively inefficient in its investment decisions with a mean assets' utilisation ratio (sale/total assets) of 1.13 as compared to 1.38 of private sector, in line with common perception. Moreover, to observe impact of agency costs on leverage regressions were run and regression results of the leverage with these two proxies of agency costs are shown in Table 2.

Table 2

Correlation of Agency Costs with Leverage

		Correlation Coefficient with TL/TA	
Proxy	Ratio	Public	Private
Expense Ratio	Operating Expenses/Sales	–0.19	–0.73
Assets Utilisation Ratio	Sale/Total Assets	–0.27	0.75

The Table 2 indicates that the increase in operations related agency costs of public sector firms due to increased management inefficiency in operating decisions (increased expenses) decreases leverage. This finding is in line with corporate finance literature that agency costs are inversely related with leverage. However, management inefficiency in investment decisions due to poor utilisation of assets or non-business assets i.e. that may not be used to generate sales like luxury vehicles, office furniture etc. increases leverage of public sector firms. It is probably possible due to their privileged access to financing sources and lesser accountability of their managerial performance. Such a myopic approach to raise debt for non-business assets may entangle these firms in 'debt trap'. Conversely, the private sector shows a strong conformity to the observations found in literature that agency costs are inversely related to leverage or increased operational and investment efficiency decreases reliance on debt.

2.2. Taxes

Researchers have been discussing the question, "Do the tax benefits of debt affect corporate financing decisions?" Modigliani and Miller (1963), Scholes and Wolfson (1992), Schulman, *et al.* (1996) and many others have presented theoretical as well as empirical arguments that the tax benefits of debt lead the firms to issue more debt so as to maximise the firm value. However, Miller (1977), Chen and Kim (1979), and Fama and French (1998) found no evidence in support of tax benefit of debt. Some of the researchers like Barclay and Smith (1995) and Graham (2000) found a mixed support of the tax benefit of debt.

We will try to answer this question with a little modification, "Do the tax benefits of debt affect corporate financing decisions differently in public and private sectors?" Public sectors firms have got favourable tax treatment during the period under study with the mean tax rate (taxes/net profit before taxes) of 34 percent as compared to 53 percent of private sector. However, contrary to the findings of the literature the Table 3 depicts that the public sector shows a mild inverse response to decrease leverage if tax rate is increased. This could be explained by the privileged tax treatment they get. On the other hand, private sector tends to increase their leverage with the increase in taxes. This finding is in line with the observations found in literature; see for example Modigliani and Miller (1963), MacKie-Mason (1996), Rajan and Zingales (1995), Givoly, *et al.* (1992), Barclay and Smith (1995) and Walsh and Ryan (1997).

Table 3

Relationship of Taxes with Leverage

		Correlation Coefficient with TL/TA	
Proxy	Ratio	Public	Private
Tax Rate	Taxes/Net Profit Before Taxes	–0.05	0.23

2.3. Non-debt Tax Shield

Non-debt tax shield Non-debt tax shield may affect financing policy of the firms. Theoretical models like trade-off [e.g. Scott (1972), and DeAngelo and Masulis (1980)] and observations by researchers [e.g. Cordes and Sheffrin (1983), Shenoy and Koch (1996)] suggest that there exists substitutability between non-debt and debt tax shields. They observe that the firms with more depreciation allowances may not enjoy the full tax benefits from leverage. The non-debt tax shields may eliminate the need for debt-generated tax shields and such firms may therefore tend to have lower leverage. However, Bradley, *et al.* (1984) have found a significant positive association between debt and the non-debt tax shields.

The Table 4 indicates that public sector seems to take more advantage of internally generated cash flow by depreciation to reduce its leverage. Such a behaviour is in conformity with the trade-off model i.e. the depreciation substitutes the debt tax shield. The private sector, however, nominally reduces leverage in response to increase in non-debt tax shield.

Table 4

Relationship of Non-debt Tax Shield with Leverage

Proxy	Ratio	Correlation Coefficient with TL/TA	
		Public	Private
Depreciation Rate	Depreciation/Total Assets	–0.52	–0.03

2.4. Growth

Toy, *et al.* (1974), Stonehill, *et al.* (1975), and Chaplinsky and Niehaus (1990) have presented evidence to support the view that growth rate is a determinant of capital structure. Gupta (1969) and Higgins (1977) have shown that the firms having more investment opportunities use more debt to maximise the firm's value. While, others found inverse of this, see for example, Myers (1977), Anderson and Makhija (1999), Lang, *et al.* (1996), and Barclay and Smith (1995).

The firm's growth rate is a determinant of capital structure [Toy, *et al.* (1974), Stonehill, *et al.* (1975)]. The results of estimated equations for both the sectors, depicted in Table 5, indicate that growth has positive impact on the debt level with public sector responding more strongly. Privileged access to the debt sources, as explained in section 2.1, may be a valid reason for this phenomenon. Moreover, this sector may be growing faster than internally sustainable and the retained earnings might not be sufficient to finance their growth needs. While choosing external financing sources, external equity is generally last resort for such firms as it dilutes earnings leading them to choose debt. Similar observations are made by Gupta (1969), Higgins (1977) and Ellsworth (1983).

Table 5

Relationship of Growth with Leverage

Proxy	Ratio	Correlation Coefficient with TL/TA	
		Public	Private
Sales Growth Rate	$(Sales_1 - Sales_0)/Sales_0$	0.21	0.12

2.5. Firm Size

A number of studies have suggested that the leverage ratios might be, directly or inversely, associated with the firm size, for example, Archer and Faerber (1966), Gupta (1969), Scott and Martin (1975), Titman and Wesels (1988), and Anderson and Makhija (1999). The estimations for the present study, presented in Table 6, also suggest that firm size is inversely associated leverage for both the sectors. Larger firms may have better access to equity market, or may have low transaction costs, or may wish to avoid restrictive covenants of debt to maintain their managerial flexibility.

Table 6

Relationship of Growth with Leverage

Proxy	Ratio	Correlation Coefficient with TL/TA	
		Public	Private
Ln(Total Assets)	Ln(Total Assets)	–0.46	–0.77

2.6. Collateral Value of Assets and Tangibility

The firms with assets that could be used as collateral may be expected to issue more debt to take advantage of this opportunity. Moreover, higher fraction of tangible assets in assets base of a firm makes the debt choice more likely [Myers and Majluf (1984), MacKie-Mason (1990)]. Walsh and Ryan (1997) observe that the firm's debt is an increasing function of its tangible assets. If the firms do not have assets to be collateralised the creditors may impose stringent conditions leading the firms to opt for equity [Jensen and Meckling (1976), Myers and Majluf (1984)]. However, contrary to the noted literature, both the assets' collateral value as well as their tangibility has a negative association with the leverage of public as well as private sector firms in Pakistan, as depicted in Table 7.

Table 7

Relationship of Collateral Value of Assets and Tangibility with Leverage

		Correlation Coefficient with TL/TA	
Proxy	Ratio	Public	Private
Gross Fixed Assets' Ratio	Fixed Assets' at Cost/Total Assets	–0.65	–0.25
Net Fixed Assets' Ratio	Net Fixed Assets/Total Assets	–0.21	–0.72

The above results suggest that the firms with higher collateral value and higher level of tangible assets prefer equity over debt in their capital structure choices. A possible explanation could be that in Pakistani credit market the firms might have some other tools/securities/collaterals/options other than collateral value of their assets to be able to access the credit market to get debt for the firm. Moreover, it is felt that these firms take tangible assets as their productive base for revenue generation that may enable them to have better returns, more non-debt tax shields-the depreciation, and possibly improved operational cash flows. Better returns and cash flows may have been used to expand if they have rich perceived investment opportunity sets. However, if they use these for debt reduction this indicates that these firms have limited growth options.

2.7. Profitability, Cash Flows, and Liquidity

Profitable and liquid firms could absorb more debt [Brennan and Schwartz (1984)]. Ross (1977) and Harris and Raviv (1991) suggest that higher leverage should be associated with higher cash flow in the same period. Such an explanation is labeled as 'Signaling Theory of Capital Structure'. On the other hand, Opler and Titman (1994) observe "A number of authors have noted that the negative correlation between profits and leverage is consistent with Donaldson's (1961) POT". Similarly, Titman and Wessels (1988) and Baskin (1989) suggest that profitable and liquid firms prefer internally generated funds.

Table 8

Relationship of Profitability, Cash Flows, and Liquidity with Leverage

		Correlation Coefficient with TL/TA	
Proxy	Ratio	Public	Private
Net Profit Ratio	NPBT/Sales	–0.48	–0.38
Cash Flow Ratio	Net Cash Flow/Sales	–0.23	–0.56
Current Ratio	Current Ratio/Current Liabilities	–0.09	–0.29

The results shown in Table 8 suggest that the profitability (NPBT/Sales) has significant inverse association with debt level in both the sectors that can be explained in the light of POT of Donaldson (1962) and observations of Titman and Wessels (1988), Baskin (1989) and Opler and Titman (1994) that profitable firms prefer internal funds for their investment needs.

Liquidity (Current Assets/Current Liabilities) has negative association with the debt level of firms in both the sectors. The probable explanation is 'Pecking Order' of firm's financing choices, i.e. the liquid firms prefer internal equity and lesser debt [Titman and Wessels (1988), Myers (1993)]. Also the firms may have more growth options in their investment opportunity sets in future. Myers (1977), Barclay and Smith (1995), Lang, *et al.* (1996) and Anderson and Makhija (1999) observe that such firms prefer lesser debt.

3. CONCLUSIONS

The public sector firms have a different governance structure when compared to that of private sector. Moreover, public sector may have privileged access to financing sources, have got favourable tax treatment during the period under study as against the private sector and may have lesser accountability. Public sector seems to be preferring debt due to its different governance structure and privileged position they enjoy vis-à-vis their counterparts in private sector. Inefficiencies coupled with high leverage may entangle these firms in 'debt trap'.

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